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Economists in the PITS?

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by

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Economists in the PITS?

Abstract: Academic economists today are caught in a “Publication Impossibility Theorem System” or PITS. To further their careers, they are required to publish in A-journals, but for the vast majority this is impossible because there are few slots open in such journals. Such academic competition maybe useful to generate hard work, however, there may be serious negative consequences: the wrong output may be produced in an inefficient way, the wrong people may be selected, and losers may react in a harmful way. This paper suggests several ways to remedy this situation.

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An Impossibility

Many economists feel that they work in the PITS. They are subjected to a publication system, which demands extremely hard work, but offers only a minute chance of success. Today this applies in particular to young scholars who, in many countries, know that they can only obtain a permanent position at a good university if they publish in an “A-journal”². A conventional list of A-journals³ includes *The American Economic Review*, *Econometrica*, *Journal of Political Economy*, *Quarterly Journal of Economics*, and *The Review of Economic Studies*. Only when a young scholar has had at least one article, preferably two or three, published in these journals, can he or she hope to procure tenure or promotion to a full professorship. A full professor is expected to have papers accepted regularly in these A-journals; otherwise, is considered not up to the task. These “publish in A-journals or perish” requirements are rarely explicit or written down⁴. That they

² The same holds for business schools in the United States exhibiting an “extreme emphasis” on publications in A-journals (Starbuck 2005). For further evidence see Moizer (2009).

³ See e.g. Lee 2006 for various definitions and the corresponding literature.

⁴ Faculties of economics at numerous universities (e.g. the University of Linz in Austria), as well as economics associations (e.g. the Verein fuer Socialpolitik, the association of economists in Germany, Austria and Switzerland), have an official list in which they assign points for publishing in A-, B-, C- etc. journals. Typically, a publication in one of the A-journals listed above gives three times as many points as a B-journal publication. There are

do, in fact, exist is based on the author's recent conversations with both junior and senior scholars in Austria, Germany, the Netherlands, Portugal, Spain, Sweden, Switzerland, and the United Kingdom⁵.

This paper argues that it is simply impossible to meet this requirement because the number of scholars trying to achieve publication in A-journals is far larger than the number of slots open for publication. To borrow from a famous theory, one can loosely speak of an “Impossibility Theorem” with respect to publishing requirements: For the population of aspiring academic economists, it is *in general* impossible to meet publishing requirements.

also universities that explicitly offer a monetary reward for publishing in highly ranked journals. The University of Economics and Business Administration in Vienna, for example, pays authors 3,000 Euros for publication in what they define as an A+-journal (which, in economics, includes the five journals in the text above, as well as six more), and 1,000 Euros for publication in an A-journal, i.e. a top publication is defined to be worth three times as much as a second-rate one (<http://wu-wien.ac.at/forschung.praemie>). The Tinbergen Institute in the Netherlands distinguishes between journals ranked “AA”, “A” and “B”. Among the latter are (otherwise highly regarded) reviews such as *Economica*, *Journal of Economic Behavior and Organization*, or *Economic Letters*. Other universities do not consider journal publications lower than A at all. It is sometimes rumored that to publish in B, C, or other lower ranked journals has even a negative effect on one's career.

⁵ As always, it is difficult to state whether, and to what extent, this and the following arguments apply to the United States academic system because it is characterized by such a wide variety: The top universities are very different from minor institutions which also call themselves universities.

Another question is to what extent the observations and suggestions discussed here also apply to disciplines outside economics. While they can certainly not be directly transferred, there are indications that many aspects are also relevant elsewhere, see e.g. the discussion by Hewstone and Stroebe (2008) on social psychology.

Scholars can thus be taken to work in the PITS, i.e. in a “Publication Impossibility Theorem System”.

Table 1 shows the number of slots, or the supply, available in A-journals per year.

Table 1. Slots in A-journals, 2007

Journal	Total number of articles	Articles by	
		scholars in top US universities	Articles by economists in the US
<i>American Economic Review</i> ^{a)}	102	44 (43%)	84 (82%)
<i>Econometrica</i>	51	18 (35%)	38 (75%)
<i>Journal of Political Economy</i>	31	19 (61%)	25 (81%)
<i>Quarterly Journal of Economics</i>	44	25 (57%)	37 (84%)
<i>Review of Economic Studies</i>	47	13 (28%)	40 (85%)
	275	119 (43%)	224 (81%)

^{a)} *Papers and Proceedings* are excluded.

Table 1 shows that in 2007 overall 275 articles were published in A-journals. More than 40% of those contributions were provided by scholars from the top US universities (Harvard, MIT, Princeton, Yale, Berkeley, and Stanford); more than 80% of all articles by scholars

working in the United States. If this distribution holds in the future (and there is little reason to expect any drastic changes), an academic from any other country (of the more than 190) in the world can expect to be in the competition for the roughly 50 remaining slots.

It is extremely difficult to estimate how large the demand to publish in top economics journals is in any given year. A rough estimate is that there are around 10,000 academics actively aspiring to publish in A-journals. The true figure is probably even larger, as one single outlet, *RePec*, lists no less than 20,000 scholars presently creating academic writing. Even if two-thirds of them are from the United States, there are around 7,000 scholars from all other countries.

However, it may safely be assumed that a considerable number are not listed in *RePec*, precisely because they have not yet been successful in publishing in one of the journals or other publication outlets included in *RePec*. What matters is that, by necessity, an *extremely low* share of aspiring scholars will be able to publish in an A-journal. Publication in these journals is characterized by extreme excess demand.

This is Just a Tournament

The requirement to publish in A-journals can be understood as a tournament in which only one person or, in our case, a few people rise to the top, while the great majority of contenders fail to do so (Frank 2001, 2004). Such a tournament (Lazear and Rosen 1981) is held to

provide the incentives necessary to put in lots of effort and do better than the other contenders. These are the beneficial effects of “publish or perish” which conventional economics has in mind.

But There May Be Problems...

The tournament system reflected in the PITS possibly does not produce the claimed positive overall effects, if the following four problems arise:

1. If the selection of papers is random or distorted.

The papers accepted in the A-journals must conform exactly to a clearly specified criterion. This criterion is defined *within* academia, or by the “republic of science” (see Polanyi 1967, Merton 1973, Osterloh and Frey 2009a, 2009b), in our case by the peer group of academic economists. Sociologists refer to such a criterion as “self-referential”, as it is independent of any outside evaluation. A self-defined criterion could easily be criticized by arguing that any discipline should consider the interests of the wider public. This is particularly true of economics. Many people take it for granted that academic economists should help other people in society, in particular political and administrative decision-makers, to better understand how the economy works and to improve its performance (see e.g. Colander et al. 2009 addressing the

systematic failure of academic economists to adequately deal with the current financial crisis). While it is difficult to define exactly what this means, it is clear that such an objective is determined from *outside* the discipline.

Even if the internal criterion by the academic economics profession were consistent with the external criterion described above – which can well be doubted⁶ – it remains open to debate whether the members of the discipline are able to select the respective papers. The selection of papers relies on an elaborate system of peer reviews, which is considered the only reliable *ex ante* evaluation method. However, there exists substantial empirical evidence that in general the peer-review process does not perform very well, and in particular that the selection of papers for A-journals resembles a random process (see, extensively, Daniel 1993, Frey 2003, Bedeian 2004, Weingart 2005, Tsang and Frey 2007, Osterloh and Frey 2009b, Gillies 2008, Raelin 2008). The inter-rater reliability is deficient (see e.g. Starbuck 2006); the evaluation of a paper by various referees, on average, correlates only by 0.2 to 0.3, which is also rather low. Moreover, Oswald (2007) recently demonstrated that many papers published in B-journals get far more subsequent citations than many papers published in A-journals. As citations

⁶ See the charges of “autism” made against standard economics from many quarters. The movement, which started in the Grandes Ecoles in France and led to an on-line journal, *Post-Autistic Economics Review*, is well known.

are considered the ultimate ex post evaluation in the profession, this evidence suggests that the present refereeing process is open to criticism.

2. *If the publishing activity is wasteful*

Even if the selection of articles for A-journals were perfect (which it never is nor ever will be), there remains the question whether the social benefits produced by such a publication is worth the input of labor required. This is not necessarily the case, as the hours needed to write a paper acceptable for an A-journal can be immense; some scholars work for a year or more to try to get a single paper into one of these few journals.

Scholars are well aware that a considerable part of this huge effort is devoted to *technique* and *presentation*, rather than to *content*. A large part of the effort is devoted to write the paper such that it will meet the actual or imagined requirements of the referees and editors⁷. Referring to the high rejection rates, Moizer (2009:1) utters a widespread feeling: “Something cannot be right with a system which creates so much apparent waste”.

A large share of the papers written with huge effort and time input are totally disregarded. The median number of citations of economics papers is zero, or close to zero. According to Laband

⁷ “... academics may spend as much time on the style of their writing and the orientation of their arguments as on the raw content” (Raelin 2008: 125, see also Black, Brown, Day and Rice 1998, Frey 2003).

and Tollison (2003), in a sample of 73 journals in 1974 and 91 journals in 1996, 26% of papers were never cited. One has to go through 70% of the papers before the average per paper has been cited more than once. This can hardly be considered to be highly productive, as the “dry holes” dominate by far.

It may nevertheless be claimed that even if a large majority of papers does not make it into an A-journal, and even if a large majority of publications in A-journals (and elsewhere) were indeed of little or no value (as they are never cited by peers), this production is *necessary* in order for a *few gems* to be produced. It is indeed impossible to predict which scientific contributions peers will consider to be important *in the future* (see, extensively, Frey and Osterloh 2009b). The gems only reveal themselves after some time, often a lengthy period. But this does not mean that the existing publication process should be taken to be sacrosanct. Different institutional arrangements than the existing tournament may be better able to produce the gems, and create less waste. The fact that (especially young) scholars are forced to pursue publishing in A-journals should not be taken to mean that this rule is efficient. It is certainly difficult to undertake even a basic comparison between the social benefits produced by the existing publication activity in A-journals and the huge costs in terms of energy used specifically in trying to get papers published in these journals

(see Gans and Shepard 1994). It may be argued that at least the part of the rent-seeking activity devoted to pleasing the referees and the editors, and to fulfill purely formal requirements (such as the way the citations have to be arranged, and the paper has to be submitted) are wasteful.

The crucial question is whether a more efficient system is attainable. One should actively consider alternatives to the present arrangement. It should be legitimate to at least ask whether the overall productivity of economists, from the point of view of society, would not be higher if they could choose more freely what and where they wanted to publish (for instance, in the form of books, contributions to collected volumes, and even in the general media), and even whether publishing is the main, or only, activity in which they should be obliged to engage. It cannot be dismissed readily that economists might perform a more useful social service if a larger number of them were induced to solve pressing and applied current problems rather than to be “wasted” in the useless effort of publishing papers in A-journals.

A more efficient policy than “publish in A-journals or perish” could possibly be to induce scholars to first establish their credentials in economics by writing a number of papers devoted to the solution of concrete issues that, due to their lesser formal elegance, are inappropriate for A-journals.

3. If the “wrong” people are selected

A tournament among papers submitted to A-journals only leads to a satisfactory selection of *people* in academia if writing top papers is the *only* relevant criterion. This is doubtful as academics have to fulfill various other important activities, i.e. they should be engaged in multiple other tasks. The most important among these are:

- Teaching;
- Supporting young scholars (PhDs and postdoctoral students);
- Informing and advising the public; and,
- Participating in university administration.

To excel in these tasks can, but does not necessarily has to, positively correlate with the ability to write A-journal papers. Due to the fact that only the peers can evaluate the value of research, there is a permanent danger of a increasing gap between research and practice. Few scholars in economics seem to be ready to seriously consider this dilemma. They prefer to take it for granted that the research published in A-journals is always useful to practice even though there does not seem to be

any empirical evidence to support that view (but neither to the contrary, see Frey 2006⁸).

As the pursuit to publish in top journals is extremely arduous and time-consuming, it is likely that a negative correlation between publishing and the four tasks just mentioned is generally produced. Due to the time-and-effort constraints, few scholars are able to perform these tasks sufficiently well *and* also fully engage in the publishing tournament. The publishing record being easy to measure, while the performance with respect to the four other tasks is not, the multiple-task effect (Holmström and Milgrom 1991, Prendergast 1999) suggests that academics mainly engage in publishing efforts and disregard the other tasks.

Imposing strict requirements for publishing in A-journals also tends to lead to an undesirable selection effect among participants, as intrinsically motivated scholars, especially those interested in teaching and informing the public, are likely to be put off while extrinsically motivated scholars thrive (this is the crowding-out effect, see Frey 1997, Bénabou and Tirole 2003). The fact that there are always *some* extremely gifted and extrinsically motivated scholars who excel in several of these

⁸ In a related field, accounting, some authors are prepared to conclude that accounting research has little or no effect on practice, see Bedford (1978:2), Dyckman, Gibbier and Swiering (1978:87), Kaplan (1978:168), Sullivan (1993), and Moizer (2009:3).

tasks simultaneously is not a sufficient argument to force all of them to participate in the publication tournament. There are not only above average but also below average scholars for whom the requirement to publish in A-journals takes away a very large amount of time and effort from other tasks. Moreover, it is difficult to imagine a well-functioning department composed of A-journal publishing scholars only. A balanced mixture of various capabilities is more likely to work successfully; in particular, it allows the most gifted scholars to have the room to flourish.

4. If the reaction of the losers is harmful.

The cost of the PITS depends to a great extent on how scholars unable to publish in A-journals react and what their options are. Some people who in the past lost in the tournament keep trying to publish in A-journals but it is unrealistic to assume that they will do so over an extended period. Most of them are realistic enough to realize sooner or later that they will not be successful. They may resort to several different kinds of behavior:

- (a) They can try to publish in lower ranked journals knowing that based on that, they will not attain a satisfactory position at a good university. The question is whether such lesser careers exist in a particular university system. If the strict “publish in A-journals or perish” requirement is in force, such lesser careers do

not exist and these people will have to leave and work outside academia.

(b) The “losers” can decide to give up their plan to stay in the university system and exit the profession. This selection effect is socially beneficial if the publication tournament is fully efficient. Otherwise, the strict requirement to publish in A-journals leads to an unwanted adverse selection of scholars able to write the necessary A-papers, but who turn out to be of little use or even outright failures with respect to other university tasks. The distribution of talent between scholars who are able to publish in A-journals and those who are not is likely to overlap. It follows that the worst scholars with top publications are less able (they are “lemons”) than the best scholars without a-level publications. An exit to activities outside the university may be socially beneficial if the effort to publish in A-journals helps them to be better trained in other occupations. This may, but need not, be the case⁹ because the writing of papers for A-journals is a quite specialized activity: a necessary requirement is to follow the self-defined criteria the economics profession happens to have during a particular period, but which outsiders

⁹ It can be argued that an economist who manages to publish one or two papers in an A-journal is often worse than somebody who engages in broader academic activities, and has published papers in respectable, but not top, journals. The former has devoted all effort to writing papers acceptable to the referees of the top journals, but otherwise is not well trained for the other academic tasks. (I owe this point to Reiner Eichenberger)

might not necessarily find important. Today, this refers to the specific way Americans write scientific works¹⁰, to the language, and especially to the techniques of analysis used. An example is the current *extreme focus* on the “identification” problem in econometric analysis, i.e. the need to clearly establish often opposing causal relationships. In many cases, discussions in academic seminars, and the decision to reject a paper in a journal, is reduced to this issue, essentially neglecting all other, possibly important, aspects. It sometimes seems that the *content* of a contribution has become more or less irrelevant, and the only thing that really counts is technical dexterity (see Ellison 2002, Frey, Eichenberger and Frey 2009). An economist sharing this view with the public and wanting to concentrate on issues of content rather than on technique, finds it nearly impossible to publish in an A-journal. He or she will then be lost for the profession.

(c) The “losers” stay on as long as they can in their university job (which in some European countries means for very many years, if not for life). They may well be psychologically depressed, even show signs of mental disorder. Others may become aggressive and obstruct the work of those scholars who

¹⁰ French or German scholars traditionally developed their ideas in a way, which differs fundamentally from the way Americans do today. But it should not be forgotten that this kind of writing was used by some of the most original and best scholars in the discipline.

hope to meet the publication requirements (see Lazear 1995 on sabotage). A milder form of such behavior is taking a long time, and disregarding the time limits set by the editors, when asked to referee (thus extending the already long time period before journals take even a first decision), writing dismissive, hostile or even devastating referee reports for professional journals (Miller 2006). Circumstantial evidence suggests that such negative attitudes have become more common than they used to be in the past, reflecting the increasingly strict publication pressure.

Depending on what type of reaction prevails, the A-journal publication tournament may lead to positive or negative consequences overall. The present system of forcing scholars to try to publish in top journals only, and disqualifying all other publication outlets, may have negative consequences in various respects.

An Open Issue

If the analysis above is correct, *it is debatable whether the PITS is socially beneficial or not*. At the least, it should not be taken for granted (as is generally done today) that the PITS is a good, or even the best, way to organize academia. Before such a conclusion is drawn, a serious discussion of the possible negative effects is in order, and much more empirical evidence is needed. The evaluation should not be confined to considering the effects on (internally defined) “scientific excellence”, but should also consider the possible negative

aspects: imperfect and biased selection of papers and of scholars, effects on other economic activities and on those scholars not successful in the tournament. Moreover, the present system of the A-journal publication requirement should be compared to alternative ways of organizing science:

(d) One possibility would be to solve the multiple-tasking problem by making an effort to *measure all aspects important for an academic career*: teaching, supporting younger scholars, linking up to the public, and participating in academic administration. While this first option seems straightforward, it is not to be recommended. It would lead to an enormous amount of evaluation, and scholars would invariably find ways to “beat the system”.

(e) A quite different, and even contrary, option is to resort to an overall evaluation of young scholars based on the *intuitive knowledge of seasoned scholars*. There are various possibilities to select such persons. An attractive option would be to elect them by a vote among the members of the respective professional organization. This would ensure that the peers making up the “Republic of Science” are in control. The scholars elected by such a procedure would be under the scrutiny of the profession as a whole and would lose their reputation among their peers if they pushed unfounded personal interests. This gives them an incentive to decide as objectively

as possible while maintaining an overall perspective. This option gives the members of professional organizations more power compared to today and helps to fight the oligopolistic tendencies of the small number of A-journals.

Nevertheless, such a procedure seems to be “unscientific” because it is not based on the seemingly neutral measures of publications in A-journals. However, such a view is too simple. According to recent psychological research, “gut feelings” are often superior to in-depth analyses (Gigerenzer 2007, 2002, popularized by Gladwell 2005). Indeed, many established scholars proceed in this way when they exchange their views about younger scholars. What matters to them is indeed the gut feeling, and not whether someone has published a paper in a particular A-journal.

Using the intuitive knowledge of seasoned scholars has, of course, disadvantages. There is certainly the danger of an “old boys network” giving young scholars an incentive to attempt to personally please the seasoned scholars. Personality and friendship may matter more than research excellence because gut feelings are to some extent influenced by such perceptions. On the other hand, these claimed disadvantages should not be overrated. It should not be forgotten that the present system focusing on A-journal publications is also influenced by personal relationships and preferences, as well as by selfish

interests. It has, for instance, become a common practice in economics to abundantly and positively cite possible referees in order to raise the chance of acceptance. In contrast, aspiring scholars refrain from criticizing other scholars fearing that they will be chosen as referees and will react negatively¹¹. Even more importantly, scholars in dire need of publication are induced to follow the referees' "advice" even if they clash with their own insights and views. This behavior has been called "academic prostitution" (Frey 2003).

(f) A third possibility is to *restrict* the PITS to the early phase of a scientific career. Scholars must learn the tools of the trade and must show that they are able to use them with profit. Thereafter, one should let scholars proceed as they see fit for themselves (see more fully Osterloh and Frey 2009b)¹². This allows them to exhibit their intrinsic motivation in scientific research at least for the remaining part of the career. An obvious disadvantage is that scholars in later phases of their careers are not subjected to any external monitoring and may no longer engage themselves in research. This may well be so but an

¹¹ Such behaviour is, of course, inconsistent with the generally held view of referees solely acting according to professional standards and ethics. It is, however, difficult to see why the economic model of behaviour essentially based on self-interest should not apply to scholars in their role as referees.

¹² The academic system in some countries works in this way: full professors in particular are not required to show that they continue to publish (or not). To the extent this is the case, the second suggestion has already been realized.

academic system should be designed to enable the best rather than to prevent the worst¹³.

(g) Yet another possibility would be to more openly shape *several levels of scientific careers*. In particular, there should be careers at universities and research institutes for which it is sufficient to have published in one or several of the hundreds of other general and specialized journals, but also in the form of books and internet publications, as well as participation in current public debates (i.e. acting as a “public intellectual”, see Posner 2002). Such a policy would serve to produce a broader portfolio in the economics profession with respect to type of contribution, content, techniques and universities¹⁴. With the present focus on A-level publications, diversity – a crucial requirement for

¹³ It should be kept in mind that *no* system is able to exclude persons who do not perform well after having entered it. The relevant question is how large their share is, and how badly they affect the system. In the case of academia the damage is not so large because such people normally decide to engage more in teaching and in administrative tasks. This helps the more productive scholars to have time to do research.

¹⁴ According to a recent analysis by Oswald (2009) for the United Kingdom outstanding work – a set of genuinely world-leading articles – comes from a wide range of sources, namely 21 different universities not normally considered in the top half-dozen in the country.

originality - is indeed threatened as has been empirically shown (see Osterloh and Frey 2009a, 2009b).

To require each and every scholar to aspire to publish in A-journals is likely to be a flawed policy and strengthens the oligopolistic power of the five A-level journals whose number and composition has remained constant over an extended period of time¹⁵. As in other such factually closed markets the demanders (i.e. the scholars wanting to publish in such a journal) may to some extent exploit this situation by forcing them to adjust to their preferences and formal requirements. Empirical analysis¹⁶ suggests that authors from prestigious universities have greater success with A-journals because of their location and not because they do better research.

Unfortunately, in several European countries (notably in Germany and Switzerland) professors in applied universities (formerly called *Fachhochschulen*) are now required to engage in advanced research and to publish at the same level and with the same intensity as their colleagues at scientific universities. This expands the prevailing emphasis on top-level publications even further.

¹⁵ Somewhat surprisingly, as more journals become available online, more recent and fewer journals and articles are cited. Researchers are more quickly put in touch with prevailing opinion tending to accelerate consensus and narrows the range of ideas and findings (Evans 2008). Alternative procedures to the present publication system are provided by Prüfer and Zetland 2008 and Tsang and Frey 2006).

¹⁶ The evidence refers to psychology journals, Peters and Ceci 1982.

Each of these (and possibly other) options has its advantages and disadvantages which must be carefully considered in the context of the conditions existing in a particular country at a particular moment in time. In countries in which established scholars with only limited international importance to play the tune that emphasizes publication in A-journals may turn out to be a preferable strategy. In contrast, in countries in which an academic career is more open, less emphasis on A-journal publication records and a more general evaluation by elected seasoned scholars may be more advisable. This paper does not propagate any of the options discussed but wants to call attention to the major shortcomings of the present system of “publish in A-journals or perish” to the disregard of other scholarly contributions. We certainly need more empirical evidence on many points raised in this paper. The major intention is to point out that there are *viable alternatives* to be openly discussed.

References

Bedeian, A. G. “The Manuscript Review Process: The Proper Roles of Authors, Referees, and Editors”. Y. Baruch, S. Sullivan and H. Schepmyer (eds.), *Winning Reviews: A Guide for Evaluating Scholarly Writing*, 2006, 104-116.

Bedford, N. M. “The impact of a priori theory and research on accounting practice”. A. R. Abdel-Khalik and T. Keller (eds.), *The Impact of Accounting Research on Practice and Disclosure*, 1978, 2-31.

Bénabou, R. and J. Tirole. “Intrinsic and Extrinsic Motivation”. *Review of Economic Studies*, 70(3) 2003, 489-520.

Black, D., S. Brown, A. Day and P. Race. *500 tips for getting published: A guide for educators, researchers and professionals*, London: Taylor & Francis Group, 1998.

Colander, D., H. Föllmer, A. Haas, M. Goldberg, K. Juselius, A. Kirman, T. Lux and B. Sloth. “The Financial Crisis and the Systematic Failure of Academic Economists”. Kiel Working Paper 1489, Kiel Institute for the World Economy.

Daniel, H. D. *Guardians of Science: Fairness and Reliability of Peer Reviews*. Weinheim: Wiley, 1993.

Dyckman, T. R., M. Gibbins and R. J. Swieringa. "Experimental and Survey Research in Financial Accounting: A Review and Evaluation". A. R. Abdel-Khalik and T. Keller (eds.), *The Impact of Accounting Research on Practice and Disclosure*, 1978, 48-105.

Ellison, G. "Evolving Standards for Academic Publishing: A q-r Theory". *Journal of Political Economy* 110(5), 2002, 994-1034.

Evans, J. A. "Electronic Publication and the Narrowing of Science and Scholarship". *Science* 321, 2008, 395-399.

Frank, R. H. "Higher Education: The Ultimate Winner-Take-All Market?" M. Devlin and J. Meyerson (eds.), *Exploring the Future of Higher Education, Forum Futures 2000 Papers, Forum Strategy Series 3*, 2001, 2-12.

Frank, R. H. "Are Arms Races in Higher Education a Problem?" M. Devlin (ed.), *Publications from the Forum for the Future of Higher Education*, 2004, 49-42.

Frey, B. S. *Not Just for the Money*. Cheltenham, UK and Brookfield US: Edward Elgar, 1997.

Frey, B. S. “Publication as Prostitution”. *Public Choice* 116, 2003, 205-23.

Frey, B. S. “How Influential is Economics?” *De Economist* 154(2), 2006, 1-17.

Frey, B. S., R. Eichenberger and R. L. Frey. “Editorial Ruminations: Publishing *Kyklos*”. *Kyklos* 62, 2009, 151-160.

Gans, J. S. and G. B. Shepard. “How are the Mighty Fallen: Rejected Classic Articles by Leading Economists”. *Journal of Economic Perspectives* 8, 1994, 165-180.

Gigerenzer, G. *Calculated Risk*. New York: Simon & Schuster/Penguin, 2002.

Gigerenzer, G. *Gut Feelings*. New York: Penguin/Viking, 2007.

Gillies, D. *How Should Research be Organized?* London: College Publications, 2008.

Gladwell, M. *Blink. The Power of Thinking Without Thinking*. New York: Little, Brown and Company, 2005.

Hewstone, M. and W. Stroebe. "Moving at a snail's pace: some observations on the publication process in social psychology". Department of Psychology, University of Utrecht, mimeo, 2008.

Holmström, B. and P. Milgrom. "Multi-Task Principal Agent Analysis: Incentive Contracts, Asset Ownership and Job Design". *Journal of Law, Economics and Organization* 7: 24-52, 1991.

Kaplan, Robert S. "Information Content of Financial Accounting Numbers: A Survey of Empirical Evidence". A. R. Abdel-Khalik and T. Keller (eds.), *The Impact of Accounting Research on Practice and Disclosure*, 1978, 134-173.

Laband, D. N. and R. D. Tollison. Dry Holes in Economic Research. *Kyklos* 56: 161-174, 2003.

Lazear, E. *Personnel Economics*. Cambridge, Mass.: MIT Press, 1995.

- Lazear, E. and S. Rosen. "Rank-Order Tournaments as Optimum Labor Contracts". *Journal of Political Economy* 89(5): 841-64, 1981.
- Lee, F. S. "The Ranking Game, Class, and Scholarship in American Mainstream Economics". Mimeo, Department of Economics, University of Missouri, 2006.
- Merton, R. K. *Sociology of Science: Theoretical and Empirical Investigations*. Chicago: The University of Chicago Press, 1973.
- Miller, C. C. "Peer review in the organizational and management sciences: Prevalence and effects on reviewer hostility, bias, and dissensus". *Academy of Management Journal* 49, 2006, 425-431.
- Moizer, P. "Publishing in accounting journals: A fair game?" *Accounting, Organizations & Society* 34(2), 2009, 285-304.
- Osterloh, M. and B. S. Frey. "Are more and better indicators the solution?". *Scandinavian Journal of Management* 25, 2009a, 225-227.
- Osterloh, M. and B. S. Frey. "The Role of Incentives for Academic Research. Integrating to Different Perspectives". Institute of

Organization and Administrative Sciences, University of Zurich, Mimeo, 2009b.

Osterloh, M. and B. S. Frey. “Are more and better indicators the solution? Comment to William Starbuck”. *Scandinavian Journal of Management* 25(2), 2009, in print.

Oswald, A. J. “An Examination of the Reliability of Prestigious Scholarly Journals: Evidence and Implications for Decision-Makers”. *Economica* 74: 21-31, 2007.

Oswald, A. J. “World-leading research and its measurement”. *Warwick Economic Research Research Papers*, No. 887, 2009.

Peters, D. P. and S. J. Ceci. “Peer-review practices of psychological journals: The fate of published articles, submitted again”. *Behavioral and Brain Sciences* 5, 1982, 187-255.

Polanyi, M. “Science and Reality”. *British Journal for the Philosophy of Science* 18(3), 1967, 177-196.

Posner, R. A. *Public Intellectuals: A Study of Decline*. Cambridge: Harvard University Press, 2002.

- Prendergast, C. “The Provision of Incentives in Firms”. *Journal of Economic Literature* 37: 7-63, 1999.
- Prüfer, J. and D. Zetland. “An Auction Market for Journal Articles”. *CentER Discussion Paper* 2007-79, 2007.
- Raelin, J. A. “Refereeing the Game of Peer Review”. *Academy of Management Learning & Education* 7(1), 2008, 124-129.
- Starbuck, W. H. “How much better are the most prestigious journals? The statistics of academic publication”. *Organization Science* 16: 180-200, 2005.
- Starbuck, W. H. *The Production of Knowledge. The Challenge of Social Science Research*. Oxford: Oxford University Press, 2006.
- Sullivan, J. B. “ The impact of auditing research on auditing practice”. *Auditing: A Journal of Practice & Theory* 12, 1993, 1-2.
- Tsang, E. W. K. and B. S. Frey. “The As-Is Journal Review Process: Let Authors Own Their Ideas”. *Academy of Management Learning and Education* 6(1) 2007, 128-136.

Weingart, P. “Impact of bibliometrics upon the science system: Inadvertent consequences”. *Scientometrics* 62, 2005, 117-31.